

RA407.5
.N53
no.14
1964

National Institutes of Health
Bethesda, Maryland 20014

DEPARTMENT OF HEALTH
SPECIAL REPORT SERIES

14

PATIENT-NURSE DEPENDENCY
GERIATRICS

*Issued by the Research and Planning Unit
of the Department of Health
Wellington, New Zealand*



1964



DEPARTMENT OF HEALTH

PATIENT-NURSE DEPENDENCY GERIATRICS

An Analysis of Survey Data from Three Public Hospitals in Christchurch 1962

by

THE RESEARCH AND PLANNING UNIT

(formerly the Operation Research Unit)

Dr I. J. Jeffery	Physician-Director
Miss Shirley M. Lowe	Nurse Member
Mr L. V. Chaplin	Work Study Member
Mr D. Blakeley	Survey Liaison Officer
Mr C. Gardiner	Medical Statistician

SPECIAL REPORT ^{Series} No. 14

*Issued by the Research and Planning Unit
Department of Health, Wellington
December 1964*

N 53
1964

FOREWORD

by Dr H. B. Turbott, I.S.O., M.B., Ch.B., D.P.H.,
Director-General of Health

This report is one of a series concerned with a survey of patient nurse dependency made in three hospitals administered by the North Canterbury Hospital Board by the Operational Research Unit with the active co-operation of the Board.

In general each report covers a clinical specialty. Since it deals with only part of the survey data it is best considered with others in the series. The information in the report is of wide interest and I hope it will help many hospital administrators.

Reports already published have shown the worth of operational research methods in hospital planning and organisation. In this important work of giving the best possible hospital care to all who need it with resources which are often limited. the words of Charles Steinmetz are well understood -

"Co-operation is not a sentiment - it is an economic necessity".

I am pleased to record the helpfulness of the North Canterbury Hospital Board not only in assisting with the survey but also in implementing many of the recommendations.

H. B. Turbott.

CONTENTS

Page

FOREWORD

PREFACE

Section

5.1	Introduction	1
5.2	The Sample	1
5.21	Observations	1
5.22	Comments	1
5.3	The Patients	1
5.31	Sex and Age-Group	1
5.32	Marital Status and Sex	1
5.33	Ward and Sex	1
5.34	Type of Admission and Having Surgery	1
5.35	Reason for Admission	2
5.36	Source of Admission	2
5.37	Disease-Group	2
5.38	Observations	2
5.39	Comments	2
5.4	The Load of Patient Days	3
5.41	Hospital and Ward	3
5.42	Sex and Age-Group	3
5.43	Disease-Group	3
5.44	Dependency State	3
5.45	Observations	3
5.46	Comments	4
5.5	Length of Stay	4
5.51	Discharges	4
5.52	Deaths	4
5.53	Observations	4
5.54	Comments	4
5.6	Long-Stay Patients	4
5.61	Definitions	4
5.62	Hospital and Sex	5
5.63	Age-Group and Sex	5
5.64	Marital Status and Sex	5
5.65	Disease-Group and Sex	5
5.66	Dependency	5
5.67	Observations and Comments	5
5.7	Discussion	6
5.71	Equivalent Beds	6
5.72	The Dependency of Patients	6
5.73	Accommodation Census of 1962	6
5.74	Beds Required	7
5.75	Prediction of Demand	7
5.8	Conclusion and Recommendations	8

Table

1	Patients in the Sample at Start of Survey, Admitted During the Survey and in Hospital at End of Survey by Hospital and Ward	9
2	Patients in the Sample at Start of Survey, Admitted During Survey and in Hospital at End of Survey by Hospital and Type of Admission	10
3	Patients by Sex and Age-Group, Number and Percentage	10
4	Patients by Marital Status and Sex, Number and Percentage	10

Contents Continued

<u>Table (Continued)</u>	<u>Page</u>
5 Patients by Hospital, Ward and Sex	11
6 Patients by Type of Admission and Having Surgery by Hospital	12
7 Patients by Source of Admission and Sex	12
8 Patients by Disease-Group and Sex	12
9 Patient Days by Hospital Ward and Sex	13
10 Patient Days by Sex and Age-Group, Number and Percentage	14
11 Patient Days by Disease-Group and Sex	14
12 Patient Days by Dependency Variant, Number and Percentage within the Variant	15
13 Frequency Distribution of Lengths of Stay for Discharges and Deaths Occurring During the Survey Period	16
14 Long-Stay Patients by Hospital and Sex	17
15 Long-Stay Patients by Age-Group and Sex	17
16 Long-Stay Patients by Marital Status and Sex	17
17 Long-Stay Patients by Disease-Group and Sex	17
18 Dependency State of Long-Stay Patients as Percentages of All Patient Days in Each Variant	18
19 Dependency State of Long-Stay and Short-Stay Patients as Percentages of All Patient Days	19
Figure 1 Distribution of Lengths of Stay for Discharges	16
2 Distribution of Lengths of Stay for Deaths	16

P R E F A C E

This report is one of a series of administrative papers written by the Research and Planning Unit (formerly called the Operational Research Unit) to make recommendations to the North Canterbury Hospital Board and the Department of Health on the provision and organisation of hospital accommodation on the basis of survey data.

It will be well understood by workers in operational research in hospitals that we are indebted to the work of others - the Nuffield Provincial Hospitals Trust, the Operations Research Division of The Johns Hopkins Hospital and the Oxford Regional Hospital Board to name only three. The recording of dependency by day of operation follows work done at Oxford by Jeffery and Barr (unpublished).

We would thank for their co-operation and assistance during the survey, the nurses in charge of wards of Christchurch, Princess Margaret and Burwood Hospitals who daily recorded the patient data and assessed the dependencies; other members of the nursing staffs of the hospitals especially Mrs M.E.F. Chambers, Matron-in-Chief, and Miss J. Taylor and Miss S.C.I. Rolls, Matrons of Princess Margaret and Burwood Hospitals; Dr T. Morton, Medical Superintendent-in-Chief and Dr C. Dick and Dr J. H. McIntyre, Medical Superintendents of Princess Margaret and Burwood Hospitals; Mr J. G. Laurenson, Secretary to the Board and his staff.

The reports were written in consultation with Dr L. M. Berry, Medical Superintendent-in-Chief, Dr C. G. Riley, Director of Medicine and Mr H.E.H. Denham, Director of Surgery and the report on Paediatrics was written in consultation also with Dr F. T. Shannon, Paediatrician to the Board.

Acknowledgment is made of the help received from Dr R. M. Williams, Director, Applied Mathematics Laboratory and his staff especially with statistical analysis and computer programming and Mr J.P.M. Cornwall, Senior O & M Officer, State Services Commission in the preparation of Reports Nos 12, 13 and 14.

The Operational Research Unit personnel during the survey were:

Dr I. J. Jeffery,	Physician - Director
Miss Shirley M. Lowe,	Nurse Member
Mr L. V. Chaplin,	Work Study Member
Mr D. Blakeley,	Survey Liaison Officer
Mr C. Gardiner,	Medical Statistician.

It is pleasant to recall the courtesy and co-operation given by the North Canterbury Hospital Board and the staff. The survey was possible only because of this willing assistance and the credit for any worthwhile results which are achieved is due in no small measure to the Board.

PART 5 : GERIATRICS

5.1 INTRODUCTION

This Part of the report concerns patients in the sample who were 65 years of age or over. Unless another meaning is given to it, the expression "Sample" in the report refers only to these patients.

The patients are considered also in reports dealing with specific specialities.

As with other reports dealing with the survey data reference should be made to Special Report Series No. 12 which deals with the survey generally.

5.2 THE SAMPLE

The sample is a one-in-three random sample and consists of 421 patients who were in Christchurch, Princess Margaret or Burwood Hospitals at the start of the survey or admitted during it.

The numbers of patients in hospital at the start of the survey, admitted during the survey and in hospital at the end of the survey are given in Table 1 by hospital and ward and in Table 2 by hospital and type of admission.

The survey covered 88 days for Christchurch Hospital, 86 days for Princess Margaret and 91 days for Burwood Hospitals.

5.21 OBSERVATIONS

- (1) The patients were 421 of the 1,565 in the complete survey sample.
- (2) Christchurch, Princess Margaret and Burwood Hospitals treated 220, 119 and 82 patients respectively of the 421.
- (3) Patients were observed in 13 wards of Christchurch Hospital, 8 wards of Princess Margaret and 6 wards of Burwood. The patients were observed in all wards of the survey except the two childrens wards at Christchurch.

5.22 COMMENTS

- (1) The patients were 26.9% of all patients in the complete survey sample.
- (2) Christchurch treated 52.2% of the sample and Princess Margaret and Burwood 28.3% and 19.5%.
- (3) The admission rate during the survey was 175 in 88 days for Christchurch and is equivalent to 2,178 patients annually (three times the one-in-three sample). Corresponding values for Princess Margaret were 93 patients in 86 days and 1,184 patients annually and for Burwood 43 patients in 91 days and 517 patients annually.

5.3 THE PATIENTS

This section analyses data associated with admission and discharge. Where available the diagnosis on discharge is used, otherwise the provisional diagnosis is taken. In the case of the elderly where multiple pathology is the rule rather than the exception the diagnosis is the one mainly responsible for the hospital stay.

5.31 SEX AND AGE-GROUP

The patients are given by sex and age-group in Table 3.

5.32 MARITAL STATUS AND SEX

The patients are given by marital status and sex in Table 4.

5.33 WARD AND SEX

The patients are given by ward and sex in Table 5.

5.34 TYPE OF ADMISSION AND HAVING SURGERY

The patients having surgery and those not having surgery are given by type of admission and hospital in Table 6. "Surgery" is defined in Part 2 of Special Report Series No. 12.

5.35 REASON FOR ADMISSION

Of the 421 patients, 341 were admitted for therapy, 48 for investigation, 1 as infectious and 31 for other reasons.

5.36 SOURCE OF ADMISSION

The source of admission is given by sex in Table 7.

5.37 DISEASE-GROUP

The number of patients in each of the more commonly occurring disease-groups is given by sex in Table 8.

5.38 OBSERVATIONS

- (1) There were 206 males and 215 females in the sample.
- (2) The predominant age-group for each sex was 75 to 79 years which contained 55 males and 51 females.
- (3) 112 males and 54 females were married and 59 males and 116 females were widowed.
- (4) There were 304 emergency admissions and 117 waiting-list.

At Christchurch 184 of the 220 admissions were emergency; at Princess Margaret 99 of the 119 were emergency; at Burwood 61 of the 82 were waiting-list.
- (5) 322 of the 421 were admitted from their own homes and 158 of the 226 patients discharged during the survey period were discharged there.

52 of the 421 patients were admitted from another public hospital in the survey and 27 were discharged to one.

4 patients were admitted from a private hospital and 8 were discharged to one.

18 were admitted from an old peoples home and 20 were discharged to one.
- (6) There were 73 deaths and 226 discharges during the survey period.
- (7) Of the 226 discharges, 98 were referred to other than the general practitioner. Of the 98, 16 were referred to medical social workers and 11 to district nurses.
- (8) Of the 421 patients, 59 were recorded as having their discharges delayed for some social reason and 4 for an administrative reason.
- (9) Commonly occurring disease-groups were:-
 - (a) Accidents, poisoning and violence (Code 800 - 999) with 49 patients.
 - (b) Vascular lesions of the central nervous system (Code 330 - 334) with 44 patients.
 - (c) Malignant neoplasms (Code 140 - 205) with 36 patients.
 - (d) Pneumonia (Code 490 - 493) with 28 patients.
 - (e) Symptoms, senility and ill-defined conditions (Code 780 - 795) with 26 patients.
 - (f) Arteriosclerotic, hypertensive and degenerative heart disease (Code 420 - 422, 440 - 447) with 24 patients.
 - (g) Other heart disease (Code 430 - 434) with 20 patients.
 - (h) Bronchitis (Code 501 - 502) with 18 patients.
 - (i) Other diseases of central nervous system (Code 350 - 357) with 17 patients.

5.39 COMMENTS

- (1) Males were 48.9% of the sample and females 51.1%.
- (2) Patients aged 75 to 79 years were 25.2% of the total.

- (3) 54.4% of the men and 25.1% of the women were married. Over 70% of the women did not have a spouse.
- (4) 72.2% of the sample were emergency admissions and 27.8% waiting-list.

Waiting-list admissions were 16.3%, 16.8% and 74.4% of all admissions to Christchurch, Princess Margaret and Burwood respectively. For Christchurch and Princess Margaret Hospitals together 83.5% of the admissions were emergency admissions. The high percentage of waiting-list patients in the Burwood admissions is influenced by the large number of patients admitted from another public hospital.

- (5) 81.0% of the sample were admitted for therapy and 11.4% for investigation. Of the 31 patients admitted for "other" reasons 15 were long-stay patients (see later); of the remaining 16, 11 were admitted to Burwood, 4 to Christchurch and 1 to Princess Margaret.
- (6) 76.5% were admitted from home and 69.9% of the discharges were discharged there.
4.3% were admitted from an old peoples home and 8.8% of the discharges were discharged to one.
1.0% were admitted from a private hospital and 3.5% of the discharges were discharged to one.
12.4% were admitted from a public hospital and 11.9% of the discharges were discharged to one.
- (7) 7.1% of the discharges were referred to a medical social worker and 4.9% to a district nurse.
- (8) 14.0% of the patients were recorded as having their discharge delayed because of social reasons.
- (9) The first three disease-groups of Section 5.38 (9) accounted for 129 patients or 30.6% of the total. The listed disease-groups accounted for 62.2%.
- (10) Other comments are made in the general discussion (Section 5.7).

5.4 THE LOAD OF PATIENT DAYS

This section deals with the number of days spent in hospital during the survey period by the patients in the sample.

5.41 HOSPITAL AND WARD

A distribution of patient days by hospital and ward is given in Table 9.

5.42 SEX AND AGE-GROUP

A distribution by sex and age-group is given in Table 10.

5.43 DISEASE-GROUP

A distribution by disease-group and sex is given in Table 11.

5.44 DEPENDENCY STATE

A distribution by variant with percentages within the variant is given in Table 12.

5.45 OBSERVATIONS

- (1) The number of patient days was 9,691 of which 3,552 were spent at Christchurch, 2,539 at Princess Margaret and 3,600 at Burwood.
- (2) Males accounted for 4,223 and females for 5,468.
- (3) The age group accounting for most patient days was 75 - 79 years for both males and females.
- (4) Disease-groups accounting for relatively large numbers of patient days were:-
 - (a) Vascular lesions of the central nervous system (Code 330 - 334) with 1,538.
 - (b) Accidents, poisoning and violence (Code 800 - 999) with 1,518.
 - (c) Other diseases of the central nervous system (Code 350 - 357) with 800.
 - (d) Malignant neoplasms (Code 140 - 205) with 676.

(e) Symptoms, senility and ill-defined conditions (Code 780 - 795) with 495.

(f) Diabetes (Code 260) with 471.

(g) Pneumonia (Code 490 - 493) with 419.

(5) Observations dealing with dependency variants are made in Section 5.7.

5.46 COMMENTS

(1) The patients accounted for 42.4% of all patient days in the complete survey sample.

(2) Christchurch dealt with 36.7% of the sample patient days and Princess Margaret and Burwood 26.2% and 37.1%.

(3) Males accounted for 43.6% of the patient days and females for 56.4%.

(4) The first two disease-groups of Section 5.45 (4) accounted for 31.5% of the 9,691 patient days and the first seven for 61.1%.

(5) Other comments on patient days are made in Section 5.7.

5.5 LENGTH OF STAY

This section deals with the length of stay recorded for patients in the sample and not merely for days recorded during the survey period. The numbers of patient days in this section, therefore, are not comparable with values recorded for only the survey period.

5.51 DISCHARGES

A distribution of lengths of stay of patients who were discharged during the survey period is given in Table 13 and in Figure 1.

5.52 DEATHS

A distribution of lengths of stay of patients who died during the survey period is given in Table 13 and in Figure 2.

5.53 OBSERVATIONS

(1) Of the 226 discharges, 192 stayed 30 days or under, 26 stayed 31 to 90 days and 8 stayed over 90 days in the range 119 to 603 days.

(2) Of the 73 deaths, 49 stayed 30 days or under, 12 stayed 31 to 90 days and 12 stayed over 90 days in the range up to 1,530 days.

5.54 COMMENTS

(1) After 30 days, 241 of the 299 patients had been discharged or had died.

(2) The number of patients for any given length of stay ranged from 0 to 14; after 33 days stay the numbers were sporadic.

(3) 80.6% of the discharges and deaths occurred in the period up to 30 days following admission, 12.7% occurred in 31 to 90 days and 6.7% occurred after 90 days.

(4) The above values are based on a sample considered during a period which is short for considering long-stay patients and there has been no differentiation made between admissions and re-admissions which tends to weight the values in favour of the short-stay values.

(5) Further comments are made in Sections 5.6 and 5.7.

5.6 LONG-STAY PATIENTS

5.61 DEFINITIONS

Geriatric patients are often considered clinically in two groups. In one, the patients are expected to leave hospital

after a relatively short period with possibly some disability consequent upon their illness. In the other, patients are expected to spend a long time in hospital with some of them having little hope of returning to community life.

The division of geriatric patients into groups by length of stay is useful in assessing the need to provide certain types of hospital accommodation and nursing services. Generally, the short-stay patients need the facilities of an acute hospital and the long-stay, although needing skilled attention for the best prospect of rehabilitation do not need the same costly accommodation or services.

For practical purposes the first group may be divided into short-stay and intermediate-stay and the following working definitions are suggested:-

- (a) A "short-stay" patient is one whose stay does not exceed 30 days and an "intermediate-stay" patient is one whose stay exceeds 30 days but not 90 days.
- (b) A "long-stay" patient is one whose length of stay exceeds 90 days.

The limit of 30 days is proposed in light of patients in this survey and in a survey of elderly patients in public hospitals in 1958 (Special Report Series No.4) where 30 days was the mean value of all discharges. The limit of 90 days is arbitrarily chosen from the distribution of lengths of stay in this study. It approximates to the mean length of stay of all deaths of elderly patients in the 1958 survey.

It is not intended that these limits should be used for a rigid classification of patients suitable for acute wards and of those suitable for specially designed geriatric accommodation. Some patients will be more appropriately treated in geriatric accommodation before spending 30 days in hospital and others will be appropriately treated in acute wards for much longer than 30 days.

5.62 HOSPITAL AND SEX

Long-stay patients are given by hospital and sex in Table 14.

5.63 AGE-GROUP AND SEX

The numbers by age-group and sex are given in Table 15.

5.64 MARITAL STATUS AND SEX

The numbers by marital status and sex are given in Table 16.

5.65 DISEASE-GROUP AND SEX

The numbers by disease-group and sex are given in Table 17.

5.66 DEPENDENCY

Patient days spent during the survey period by long-stay patients with a percentage distribution of the variants are given in Table 18.

5.67 OBSERVATIONS AND COMMENTS

- (1) Of the 54 patients, 33 were at Burwood, 12 at Christchurch and 9 at Princess Margaret.
- (2) 16 were males and 38 were females.
- (3) 20 were aged 75 to 79 years which was the predominant age-group. 45 of the 54 patients were aged 75 years or over.
- (4) 42 of these 54 patients did not have a spouse. This was also the case with 8 of the 16 men and 34 of the 38 women.
- (5) The pattern of disease is familiar but since multiple pathology is the rule here rather than the exception no further comment is made.
- (6) During the survey period 12 long-stay patients died; 8 were discharged, 3 of them to another public hospital, 2 to their own homes, 2 to an old peoples home and 1 to "other".

At the end of the survey, 34 were still in hospital with little prospects of being discharged.

- (7) Other comments are made in Section 5.7.

5.7 DISCUSSION

This section deals with subjects more appropriately grouped together following the previous sections.

5.71 EQUIVALENT BEDS

From 3 times the number of bed days in use by the sample during the survey period the equivalent beds at 100% occupancy in the three hospitals were 328.4 of which 121.1 were at Christchurch, 88.6 were at Princess Margaret and 118.7 at Burwood.

The equivalent number of beds serving long-stay patients were at Christchurch, 22.6 at Princess Margaret 24.3 and at Burwood 83.3.

5.72 THE DEPENDENCY PATTERNS

A distribution of patient days recorded by the sample during the survey period is given by variant of dependency in Table 12 and a comparison between short-stay and long-stay patients is given in Table 19. As mentioned in Section 5.61, the short-stay patients generally needed the facilities of an acute hospital as did patients in younger age-groups. The patients in the sample are also considered in reports dealing with clinical specialities and short-stay patients are more appropriately discussed in those reports. The short-stay patients are therefore not discussed in any detail in this report. Long-stay patients are further discussed, however, because many of the problems of the care of elderly patients are associated with the nursing needs of long-stay patients. Some of the characteristics of dependency of long-stay patients are indicated by the data of Table 19 and the following comments are made:-

- (a) 14% were bedfast and 76% could walk with assistance.
- (b) 38% were completely dependent for bathing and 3% could bath without help.
- (c) 30% were completely dependent for eliminating and 11% were independent.
- (d) 26% were completely dependent for meals and 55% were independent.
- (e) 31% needed some special help on account of their mental state and 19% were emotionally disturbed.
- (f) 9% required major dressings and 9% required minor dressings, few required drainage, suction or other items of special nursing care.
- (g) Long-stay patients made heavier demands than short-stay patients for assistance with walking, bathing, eliminating and meals.

In brief, long-stay patients made comparatively little use of many of the facilities associated with an acute hospital but they needed nursing care of the type often called "basic nursing". They needed more basic nursing care than short-stay patients of the same age-group and their need of psychiatric help was greater.

Although the nursing needs of long-stay elderly patients were different from those of short-stay patients the data did not support the view that less nursing care was necessary or that inferior nursing would be satisfactory.

5.73 ACCOMMODATION CENSUS OF 1962

Special Report Series No.10 concerns a New Zealand Survey of the accommodation needs of persons 65 years of age or over. The report is based on a census which included 80 patients in public hospitals (personal communication). A medical assessment of these patients resulted in 23 being classified as short-stay, 43 as long-stay and 14 as not needing hospital care. The hospital care needed was assessed at 2.22 beds per 100 population in the age-group and of the 2.22 beds, 1.43 were long-stay and 0.79 were short-stay. (Page 23 of Report No.10.)

From the number of patient days recorded during the survey period, the average daily number of survey patients in the age-group under consideration (65 years and over) in the three hospitals surveyed can be shown to be 110. In addition to Christchurch, Princess Margaret and Burwood Hospitals, there were three other public hospitals which treated a large number of geriatric patients, viz. Jubilee Home with an average daily number of 46 during the survey period, Tuarangi Home with an average of 60 and Coronation Hospital with an average of 69 geriatric patients. A one-in-three sample of these hospitals has been taken as 58.

If the ratios of the 80 patients are applied to the mean census value of public hospitals in the Board's area of 168 patients (110 in the three hospitals surveyed plus 58 long-stay patients) the results are 48 short-stay patients, 90 long-stay patients and 30 patients not in need of hospital care.

Of the 110 patients in hospital at the start of the survey 40 stayed up to 30 days, 16, 31 to 90 days and 54, over 90 days. If the 58 long-stay patients are added the equivalent census of 168 patients could be grouped as 40 staying up to 30 days, 16, 31 to 90 days and 112 over 90 days.

There is broad agreement with the medical assessors numbers of "short-stay" and "long-stay" patients by assuming the terms to be defined in terms of the length of stay taken.

5.74 BEDS REQUIRED

The number of persons aged 65 years or over in the Board's area during the survey period may be taken as 27,000.

On the basis of the medical assessment (Section 5.73) some 599 beds should be provided and of these, 213 would be short-stay and 386 long-stay.

A 1961 census of patients showed that 172 patients aged 65 years or over were then being treated in private hospitals. If the private hospitals are assumed to treat this number during the survey period, 427 beds (599 - 172) should be available for treating patients aged 65 years or over in public hospitals. The mean daily sample of 168 is equivalent to a mean number of 504 which exceeds the expected necessary number and suggests that sufficient beds were available during the survey period in public and private hospitals in the Board's area to serve all persons aged 65 years or over.

5.75 PREDICTION OF DEMAND

The survey was not designed to establish the scope or characteristics of geriatric care but since persons aged 65 years or over contribute over 40% of the load of patient days in the three hospitals surveyed and since the three hospitals deal with over 40% of the geriatric hospital load, the survey data do help in assessing the future load which the three hospitals are likely to take.

As a guide to the disposition of patients aged 65 years or over in hospitals in the area the following values are given for the three hospitals, public hospitals not in the survey and private hospitals, from the 1961 hospital census referred to above.

<u>Group of Hospitals</u>	<u>Number of Patients</u>
3 Survey Hospitals	310
Other Public Hospitals	141
Private Hospitals	<u>172</u>
All	<u>623</u>

Again, on the basis of the expected provision of 599 the hospitals of the area with 623 beds available for the patients, have sufficient beds for the age-group.

If private hospitals are assumed to provide 172 beds for the age-group, public and private hospitals provided 676 equivalent beds during the survey period. On the basis of 2.22 beds per 100 population, the 676 beds would satisfy a population which is expected to be reached by about 1971.

As a guide to the prediction of demand until 1981 the following populations are given for the years stated with the beds expected by using the ratios of Section 5.73.

YEAR	POPULATION 65 years and over	BEDS EXPECTED		
		Short-Stay	Long-Stay	ALL
1966	28,150	403	222	625
1971	30,250	433	239	672
1981	37,450	536	296	832

The number of long-stay beds which should be provided at the three survey hospitals depends upon the number of beds which are provided elsewhere. Of the 159 long-stay beds in the three hospitals during the survey period, 69 were specifically geriatric and 90 were in wards serving acutely ill patients. The survey data supports the provision of 90 long-stay beds for elderly patients in order to provide beds better suited for this purpose and to free short-stay beds for short-stay patients.

During the survey, the Board was commissioning additional geriatric beds and already the number of long-stay patients occupying short-stay beds might have been significantly reduced. A further study of admissions would show how many may be avoided or admitted without involving short-stay beds. Many patients need care of a high standard which in many cases is able to be given more readily in wards designed for long term care than in the short-stay wards of an acute hospital.

The judicious use of medical social workers is important in achieving a high standard of medical care. Ready support can be given to the view that every patient 65 years of age or over should be interviewed by a medical social worker before admission whenever possible but certainly as soon as possible after admission. The medical practitioner responsible for the patient's care can then plan the treatment in light of the home conditions. The early contact might be particularly helpful in the patient's rehabilitation where there is no spouse.

It is recommended that the Board further study geriatric admissions and that the Board appoint a regional geriatrician responsible for managing the geriatric beds in all of the Board's institutions. The appointment would facilitate a good liaison among all concerned in the patient's welfare and would enable the best use to be made of beds particularly by screening admissions and discharges and by providing more effective rehabilitation.

5.76 CONCLUSION AND RECOMMENDATIONS

This report discussed aspects of dependency of patients in the survey sample who were 65 years of age or over. The patients are again considered in reports dealing with specific specialities. The needs of long-stay patients merit special consideration and this report is largely concerned with them and their dependency characteristics. Although the study is not a full geriatric one the data are useful in defining long-stay patients and in suggesting a re-distribution of the geriatric load.

In line with the comments and discussion in the report it is recommended that the Board -

- (1) reduce the number of elderly patients admitted to hospital by augmenting medical, medical-social and nursing services;
- (2) use these augmented services to enable patients to be discharged sooner;
- (3) Make alternative provision for some 90 long-stay patients in Christchurch, Princess Margaret and Burwood Hospitals, e.g. by providing 90 beds in specially designed wards, thereby freeing acute beds for short-stay patients. (The 90 beds should be reduced by any such beds provided since the end of the survey);
- (4) Submit requirements and ideas to enable prototype long-stay ward accommodation to be planned.
- (5) Appoint a regional geriatrician.

TABLE 1 PATIENTS IN THE SAMPLE AT START OF SURVEY, ADMITTED DURING SURVEY AND IN HOSPITAL AT END OF SURVEY BY HOSPITAL AND WARD

HOSPITAL	WARD	AT START	ADMITTED	DISCHARGED	DIED	STILL IN	ALL
Christchurch	1	1	7	6	1	1	8
	2	5	28	16	9	8	33
	3	6	14	11	2	7	20
	4	6	9	10	4	1	15
	6	3	12	8	5	2	15
	7	1	15	9	1	6	16
	8	6	12	15	1	2	18
	10	2	9	10	-	1	11
	11	5	29	26	2	6	34
	12A	3	5	5	2	1	8
	12B	2	9	5	4	2	11
	13A	4	21	15	4	6	25
	13B	1	5	3	2	1	6
	All	45	175	139	37	44	220
Princess Margaret	A1	2	7	7	-	2	9
	B1	6	17	9	4	10	23
	A2	2	9	8	2	1	11
	B2	5	16	11	6	4	21
	A3	-	3	2	-	1	3
	B3	3	17	12	4	4	20
	A4	3	11	8	2	4	14
	B4	5	13	5	4	9	18
	All	26	93	62	22	35	119
Burwood	2	6	1	-	1	6	7
	5	2	16	13	1	4	18
	6	6	11	7	3	7	17
	7	7	9	5	1	10	16
	9	9	-	-	2	7	9
	10	9	6	-	6	9	15
	All	39	43	25	14	43	82
ALL	ALL	110	311	226	73	122	421

TABLE 2 PATIENTS IN THE SAMPLE AT START OF SURVEY, ADMITTED DURING SURVEY AND IN HOSPITAL AT END OF SURVEY BY HOSPITAL AND TYPE OF ADMISSION

HOSPITAL	AT START OF SURVEY			ADMITTED DURING SURVEY			AT END OF SURVEY			ALL		
	E.	W.L.	ALL	E.	W.L.	ALL	E.	W.L.	ALL	E.	W.L.	ALL
Christchurch	33	12	45	151	24	175	37	7	44	184	36	220
Princess Margaret	21	5	26	78	15	93	31	4	35	99	20	119
Burwood	8	31	39	13	30	43	8	35	43	21	61	82
All	62	48	110	242	69	311	76	46	122	304	117	421

TABLE 3 PATIENTS BY SEX AND AGE-GROUP, NUMBER AND PERCENTAGE

AGE-GROUP (YEARS)	NUMBER			PERCENTAGE		
	MALE	FEMALE	ALL	MALE	FEMALE	ALL
65 - 69	49	45	94	23.8	20.9	22.3
70 - 74	46	44	90	22.3	20.5	21.4
75 - 79	55	51	106	26.7	23.7	25.2
80 - 84	36	46	82	17.5	21.4	19.5
85 and over	20	29	49	9.7	13.5	11.6
ALL	206	215	421	100	100	100

TABLE 4 PATIENTS BY MARITAL STATUS AND SEX, NUMBER AND PERCENTAGE

MARITAL STATUS	NUMBER			PERCENTAGE		
	MALE	FEMALE	ALL	MALE	FEMALE	ALL
SINGLE	23	38	61	11.2	17.7	14.5
MARRIED	112	54	166	54.4	25.1	39.4
WIDOWED	59	116	175	28.6	53.9	41.6
NOT KNOWN	1	-	1	0.5	-	0.2
OTHER	7	-	7	3.4	-	1.7
NOT STATED	4	7	11	1.9	3.3	2.6
ALL	206	215	421	100	100	100

TABLE 5 PATIENTS BY HOSPITAL, WARD AND SEX

HOSPITAL	WARD	TYPE OF WARD	PATIENTS		
			MALE	FEMALE	ALL
Christchurch	1	MALE ORTHOPAEDIC	8	-	8
	2	MALE MEDICAL	33	-	33
	3	FEMALE ORTHOPAEDIC	-	20	20
	4	FEMALE MEDICAL	-	15	15
	6	FEMALE MEDICAL	-	15	15
	7	MALE SURG. AND E.N.T.	16	-	16
	8	MIXED SURG. AND E.N.T.	9	9	18
	10	FEMALE SURG. AND E.N.T.	-	11	11
	11	MIXED G.U.	28	6	34
	12A	MIXED INFECTIOUS	5	3	8
	12B	MALE INFECTIOUS	7	4	11
	13A	MIXED MED. AND E.N.T.	8	17	25
	13B	MIXED INFECTIOUS	1	5	6
	Recovery	RECOVERY	-	-	-
	ALL	-	115	105	220
Princess Margaret	A1	MIXED SURGICAL	3	6	9
	B1	MIXED MEDICAL	12	11	23
	A2	GYNAE. MIXED THORACIC	8	3	11
	B2	MIXED MEDICAL	9	12	21
	A3	GYNAECOLOGY	-	3	3
	B3	MIXED MEDICAL	7	13	20
	A4	MIXED SURGICAL	7	7	14
	B4	MIXED MEDICAL	5	13	18
	Recovery	RECOVERY	-	-	-
	ALL	-	51	68	119
Burwood	2	FEMALE GERIATRIC	-	7	7
	5	MIXED SURGICAL	11	7	18
	6	MIXED MEDICAL	10	7	17
	7	MIXED ORTHOPAEDIC	4	12	16
	9	FEMALE GERIATRIC	-	9	9
	10	MALE GERIATRIC	15	-	15
	ALL	-	40	42	82
ALL	ALL	-	206	215	421

TABLE 6 PATIENTS BY TYPE OF ADMISSION AND HAVING SURGERY BY HOSPITAL

HOSPITAL	SURGERY	TYPE OF ADMISSION		
		EMERGENCY	WAITING-LIST	ALL
Christchurch	YES	42	20	62
	NO	142	16	158
	All	184	36	220
Princess Margaret	YES	9	13	22
	NO	90	7	97
	All	99	20	119
Burwood	YES	2	6	8
	NO	19	55	74
	All	21	61	82
ALL	YES	53	39	92
	NO	251	78	329
	ALL	304	117	421

TABLE 7 PATIENTS BY SOURCE OF ADMISSION AND SEX

SOURCE OF ADMISSION	PATIENTS		
	MALE	FEMALE	ALL
HOUSE	157	165	322
OLD PEOPLES HOME	5	13	18
PRIVATE HOSPITAL	1	3	4
OTHER PUBLIC HOSPITAL	25	27	52
OTHER	13	4	17
NOT STATED	5	3	8
ALL	206	215	421

TABLE 8 PATIENTS BY DISEASE-GROUP AND SEX

DISEASE-GROUP		PATIENTS		
CODE NOS.	DESCRIPTION	MALE	FEMALE	ALL
800 - 999	Accidents, poisoning and violence	17	32	49
330 - 334	Vascular lesions of the central nervous system	13	31	44
140 - 205	Malignant neoplasms	22	14	36
490 - 493	Pneumonia	11	17	28
780 - 795	Symptoms, senility and ill-defined conditions	16	10	26
420 - 422)	Arteriosclerotic, degenerative and hypertensive	12	12	24
440 - 447)	heart disease			
430 - 434	Other heart disease	11	9	20
501 - 502	Bronchitis	16	2	18
350 - 357	Other diseases of central nervous system	6	11	17
260	Diabetes	8	6	14
370 - 389	Inflammatory and other diseases of the eye	4	9	13
450 - 456	Diseases of arteries	9	2	11
570 - 578	Other diseases of intestines and peritoneum	5	6	11
Remainder		56	54	110
ALL		206	215	421

TABLE 9 PATIENT DAYS BY HOSPITAL, WARD AND SEX

HOSPITAL	WARD	TYPE OF WARD	PATIENT DAYS		
			MALE	FEMALE	ALL
Christchurch	1	MALE ORTHOPAEDIC	162	-	162
	2	MALE MEDICAL	541	-	541
	3	FEMALE ORTHOPAEDIC	-	464	464
	4	FEMALE MEDICAL	-	210	210
	6	FEMALE MEDICAL	-	170	170
	7	MALE SURG. AND E.N.T.	191	-	191
	8	MIXED SURG. AND E.N.T.	103	77	180
	10	FEMALE SURG. AND E.N.T.	-	153	153
	11	MIXED G.U.	394	89	483
	12A	MIXED INFECTIOUS	112	184	296
	12B	MALE INFECTIOUS	51	49	100
	13A	MIXED MED. AND E.N.T.	134	283	417
	13B	MIXED INFECTIOUS	31	154	185
	Recovery	RECOVERY	-	-	-
Princess Margaret	All	-	1,719	1,833	3,552
	A1	MIXED SURGICAL	50	35	85
	B1	MIXED MEDICAL	349	320	669
	A2	GYNAE. MIXED THORACIC	118	35	153
	B2	MIXED MEDICAL	223	252	475
	A3	GYNAECOLOGY	-	70	70
	B3	MIXED MEDICAL	114	273	387
	A4	MIXED SURGICAL	118	46	164
	B4	MIXED MEDICAL	59	477	536
	Recovery	RECOVERY	-	-	-
	All	-	1,031	1,508	2,539
Burwood	2	FEMALE GERIATRIC	-	471	471
	5	MIXED SURGICAL	157	120	277
	6	MIXED MEDICAL	276	224	500
	7	MIXED ORTHOPAEDIC	144	628	772
	9	FEMALE GERIATRIC	-	684	684
	10	MALE GERIATRIC	896	-	896
	All	-	1,473	2,127	3,600
ALL	ALL	-	4,223	5,468	9,691

TABLE 10 PATIENT DAYS BY SEX AND AGE-GROUP, NUMBER AND PERCENTAGE

AGE-GROUP (YEARS)	NUMBER			PERCENTAGE		
	MALE	FEMALE	ALL	MALE	FEMALE	ALL
65 - 69	1,026	807	1,833	24.3	14.8	18.9
70 - 74	663	792	1,455	15.7	14.5	15.0
75 - 79	1,197	1,502	2,699	28.4	27.5	27.8
80 - 84	816	1,370	2,186	19.3	25.0	22.6
85 and over	521	997	1,518	12.3	18.2	15.7
ALL	4,223	5,468	9,691	100	100	100

TABLE 11 PATIENT DAYS BY DISEASE-GROUP AND SEX

DISEASE-GROUP		PATIENT DAYS		
CODE NOS.	DESCRIPTION	MALE	FEMALE	ALL
330 - 334	Vascular lesions of the central nervous system	321	1,217	1,538
800 - 999	Accidents, poisoning and violence	398	1,120	1,518
350 - 357	Other diseases of the central nervous system	273	527	800
140 - 205	Malignant neoplasms	475	201	676
780 - 795	Symptoms, senility and ill-defined conditions	181	314	495
260	Diabetes	246	225	471
490 - 493	Pneumonia	174	245	419
720 - 725	Arthritis	159	194	353
501 - 502	Bronchitis	307	28	335
450 - 456	Diseases of arteries	291	9	300
Remainder		1,398	1,388	2,786
ALL		4,223	5,468	9,691

TABLE 12 PATIENT DAYS BY DEPENDENCY VARIANT, NUMBER AND PERCENTAGE WITHIN THE VARIANT

DEPENDENCY		PATIENT DAYS	PERCENTAGE
VARIANT	STATE		
WALKS	WITHOUT HELP	2,293	23.8
	WITH HELP OR IN CHAIR	5,387	56.0
	BEDFAST	1,948	20.2
BATHS OR SHOWERS	WITHOUT HELP	1,009	10.5
	WITH HELP IN BATHROOM	2,522	26.2
	WITH HELP AT BED	3,289	34.2
	COMPLETELY DEPENDENT	2,793	29.1
ELIMINATES	WITHOUT HELP	2,457	25.8
	WITH HELP	5,306	55.8
	COMPLETELY DEPENDENT	1,753	18.4
MEALS	WITHOUT HELP	6,231	65.4
	HELP WITH LIQUIDS	464	4.9
	HELP WITH SOLIDS	1,440	15.1
	COMPLETELY DEPENDENT	1,380	14.5
	TUBE FED	10	0.1
MENTAL STATE	ASSURANCE ABOVE NORMAL	1,204	12.4
	EMOTIONALLY DISTURBED	1,130	11.7
	UNCONSCIOUS	36	0.4
DRESSINGS	MAJOR	729	7.5
	MINOR	995	10.3
DRAINAGE	URINARY	356	3.7
	RYLES	18	0.2
	BILIARY (T)	4	.0
	THORACIC	38	0.4
	PARACENTESIS	-	-
	ILEOSTOMY	-	-
	COLOSTOMY	155	1.6
	OTHER	102	1.1
SUCTION	GASTRIC	10	0.1
	OTHER	39	0.4
ORTHOPAEDIC TREATMENT	TRACTION	37	0.4
	FRAME	-	-
	PLASTER CAST	143	1.5
DRUGS	SPECIAL	1,133	11.7
I.V.	FLUID	136	1.4
OXYGEN		183	1.9
MAJOR OBSERVATION	GIVEN	2,161	22.3
SPECIAL NURSE	PROVIDED	21	0.2
	WARRANTED	21	0.2
UP	FOR BED MAKING	1,205	12.6
	FOR TOILET	429	4.5
	2 HOURS	2,020	21.1
	4 HOURS	2,563	26.8
	8 HOURS	1,405	14.7

TABLE 13 FREQUENCY DISTRIBUTION OF LENGTHS OF STAY FOR DISCHARGES AND FOR DEATHS OCCURRING DURING THE SURVEY PERIOD

DISCHARGES OR DEATHS	NUMBER OF DAYS IN LENGTH OF STAY																																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31 to 90	OVER 90	ALL
DISCHARGES	2	6	4	8	8	5	9	8	6	14	8	11	6	9	7	6	7	6	9	11	2	6	11	5	2	4	5	4	2	1	26	8	226
DEATHS	3	7	3	5	4	3	5	2	-	-	4	1	1	1	-	1	3	-	1	-	-	1	1	1	1	-	-	-	-	1	12	12	73
BOTH	5	13	7	13	12	8	14	10	6	14	12	12	7	10	7	7	10	6	10	11	2	7	12	6	3	4	5	4	2	2	38	20	299

FIGURE 1 DISTRIBUTION OF LENGTHS OF STAY FOR DISCHARGES

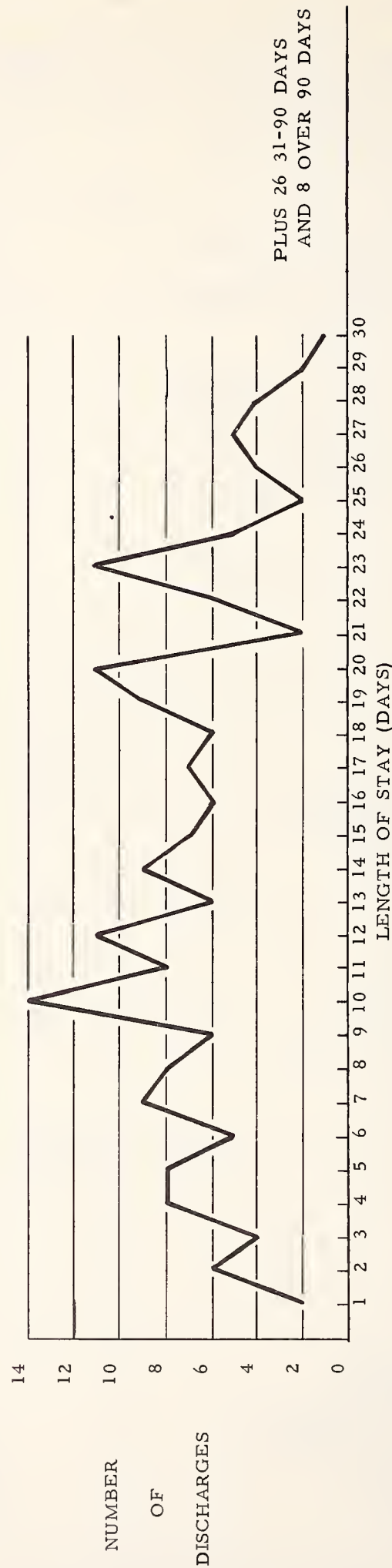


FIGURE 2 DISTRIBUTION OF LENGTHS OF STAY FOR DEATHS

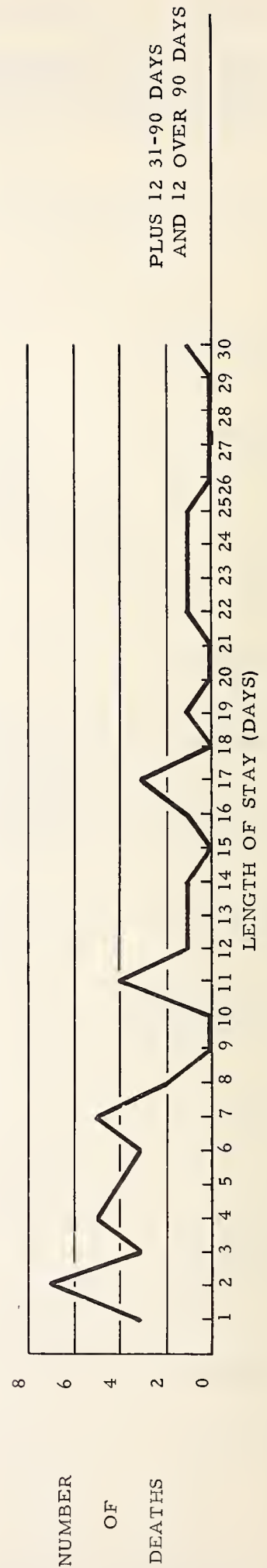


TABLE 14 LONG-STAY PATIENTS BY HOSPITAL AND SEX

HOSPITAL	PATIENTS		
	MALE	FEMALE	ALL
Christchurch	2	10	12
Princess Margaret	2	7	9
Burwood	12	21	33
ALL	16	38	54

TABLE 15 LONG-STAY PATIENTS BY AGE-GROUP AND SEX

AGE-GROUP (YEARS)	PATIENTS		
	MALE	FEMALE	ALL
65 - 69	3	5	8
70 - 74	-	1	1
75 - 79	7	13	20
80 - 84	3	11	14
85 and over	3	8	11
ALL	16	38	54

TABLE 16 LONG-STAY PATIENTS BY MARITAL STATUS AND SEX

MARITAL STATUS	PATIENTS		
	MALE	FEMALE	ALL
SINGLE	1	9	10
MARRIED	8	4	12
WIDOWED	6	18	24
OTHER	1	7	8
ALL	16	38	54

TABLE 17 LONG-STAY PATIENTS BY DISEASE-GROUP AND SEX

DISEASE-GROUP		PATIENTS		
CODE NOS.	DESCRIPTION	MALE	FEMALE	ALL
330 - 334	Vascular lesions of the central nervous system	2	11	13
800 - 999	Accidents, poisoning and violence	3	9	12
350 - 357	Other diseases of central nervous system	1	6	7
260	Diabetes	2	2	4
722 - 727	Arthritis and rheumatism	1	3	4
780 - 795	Symptoms, senility and ill-defined conditions	-	3	3
430 - 434	Other heart disease	1	1	2
Remainder		6	3	9
ALL		16	38	54

TABLE 18 DEPENDENCY STATE OF LONG-STAY PATIENTS AS PERCENTAGES OF ALL PATIENT DAYS IN EACH VARIANT

DEPENDENCY		PATIENT DAYS	PERCENTAGE
VARIANT	STATE		
WALKS	WITHOUT HELP	427	11.0
	WITH HELP OR IN CHAIR	2,903	75.0
	BEDFAST	542	14.0
BATHS OR SHOWERS	WITHOUT HELP	116	3.0
	WITH HELP IN BATHROOM	1,175	30.5
	WITH HELP AT BED	1,090	28.3
	COMPLETELY DEPENDENT	1,473	38.2
ELIMINATES	WITHOUT HELP	426	11.2
	WITH HELP	2,253	59.2
	COMPLETELY DEPENDENT	1,127	29.6
MEALS	WITHOUT HELP	2,113	54.7
	HELP WITH LIQUIDS	164	4.2
	HELP WITH SOLIDS	581	15.0
	COMPLETELY DEPENDENT	1,004	26.0
	TUBE FED	3	0.1
MENTAL STATE	ASSURANCE ABOVE NORMAL	446	11.5
	EMOTIONALLY DISTURBED	736	18.9
	UNCONSCIOUS	5	0.1
DRESSINGS	MAJOR	344	8.9
	MINOR	353	9.1
DRAINAGE	URINARY	142	3.7
	RYLES	-	-
	BILIARY (T)	-	-
	THORACIC	-	-
	PARACENTESIS	-	-
	ILEOSTOMY	-	-
	COLOSTOMY	146	3.8
	OTHER	4	0.1
SUCTION	GASTRIC	1	0.0
	OTHER	-	-
ORTHOPAEDIC TREATMENT	TRACTION	-	-
	FRAME	-	-
	PLASTER CAST	-	-
DRUGS	SPECIAL	123	3.2
I.V.	FLUID	17	0.4
OXYGEN		-	-
MAJOR OBSERVATION	GIVEN	208	5.4
SPECIAL NURSE	PROVIDED	-	-
	WARRANTED	1	0.0
UP	FOR BED MAKING	233	6.2
	FOR TOILET	33	0.9
	2 HOURS	1,025	27.1
	4 HOURS	1,270	33.6
	8 HOURS	673	17.8

TABLE 19 DEPENDENCY STATE OF LONG-STAY AND SHORT-STAY PATIENTS AS PERCENTAGES OF ALL PATIENT DAYS IN EACH VARIANT

DEPENDENCY		PERCENTAGE OF PATIENT DAYS		
VARIANT	STATE	LONG-STAY	SHORT-STAY	ALL
WALKS	WITHOUT HELP	11.0	32.4	23.8
	WITH HELP OR IN CHAIR	75.0	43.2	56.0
	BEDFAST	14.0	24.4	20.2
BATHS OR SHOWERS	WITHOUT HELP	3.0	15.5	10.5
	WITH HELP IN BATHROOM	30.5	23.4	26.2
	WITH HELP AT BED	28.3	38.2	34.2
	COMPLETELY DEPENDENT	38.2	22.9	29.1
ELIMINATES	WITHOUT HELP	11.2	35.6	25.8
	WITH HELP	59.2	53.5	55.8
	COMPLETELY DEPENDENT	29.6	10.9	18.4
MEALS	WITHOUT HELP	54.7	72.8	65.4
	HELP WITH LIQUIDS	4.2	5.3	4.9
	HELP WITH SOLIDS	15.0	15.2	15.1
	COMPLETELY DEPENDENT	26.0	6.6	14.5
	TUBE FED	0.1	0.1	0.1
MENTAL STATE	ASSURANCE ABOVE NORMAL	11.5	13.1	12.4
	EMOTIONALLY DISTURBED	18.9	6.8	11.7
	UNCONSCIOUS	0.1	0.5	0.4
DRESSINGS	MAJOR	8.9	6.6	7.5
	MINOR	9.1	11.1	10.3
DRAINAGE	URINARY	3.7	3.7	3.7
	RYLES	-	0.3	0.2
	BILIARY (T)	-	0.1	0.0
	THORACIC	-	0.7	0.4
	PARACENTESIS	-	-	-
	ILEOSTOMY	-	-	-
	COLOSTOMY	3.8	0.2	1.6
	OTHER	0.1	1.7	1.1
SUCTION	GASTRIC	0.0	0.2	0.1
	OTHER	-	0.7	0.4
ORTHOPAEDIC TREATMENT	TRACTION	-	0.6	0.4
	FRAME	-	-	-
	PLASTER CAST	-	2.5	1.5
DRUGS	SPECIAL	3.2	17.4	11.7
I.V.	FLUID	0.4	2.0	1.4
OXYGEN		-	3.2	1.9
MAJOR OBSERVATION	GIVEN	5.4	33.6	22.3
SPECIAL NURSE	PROVIDED	-	0.4	0.2
	WARRANTED	0.0	0.3	0.2
UP	FOR BED MAKING	6.2	16.8	12.6
	FOR TOILET	0.9	6.8	4.5
	2 HOURS	27.1	17.2	21.1
	4 HOURS	33.6	22.3	26.8
	8 HOURS	17.8	12.6	14.7

DATE DUE			
GAYLORD			PRINTED IN U.S.A.

PRINTED IN U.S.A.



DEPARTMENT OF HEALTH

Special Report Series

Obtainable from the Government Publications Bookshops—

AUCKLAND: corner of Rutland and Lorne Streets (P.O. Box 5344)

WELLINGTON: 20 Molesworth Street (Private Bag)

CHRISTCHURCH: 112 Gloucester Street (P.O. Box 1721)

DUNEDIN: Corner of Water and Bond Streets (P.O. Box 1104)

and from Booksellers.

TITLE			DATE OF ISSUE		PRICE PER COPY POST FREE	
					s.	d.
No. 1	MAORI-EUROPEAN STANDARDS OF HEALTH		April 1960		4	0
No. 2	DOMESTIC ACCIDENTS (Public Hospital Admissions)		July 1960		2	6
No. 3	THE GREY VALLEY SURVEY (Lung Function in Coal Miners)		February 1961		4	0
No. 4	ELDERLY PATIENTS IN PUBLIC HOSPITALS, 1958		March 1961		4	0
No. 5	SMOKING HABITS OF SCHOOL CHILDREN		May 1961		2	6
No. 6	SURVEY OF WORK IN COMPRESSED AIR - AUCKLAND HARBOUR BRIDGE		April 1962		6	6
No. 7	TUBERCULOSIS IN CANTERBURY		July 1962		4	0
No. 8	MAORI PATIENTS IN MENTAL HOSPITALS		October 1962		3	0
No. 9	CENSUS OF MENTAL HOSPITAL PATIENTS, 1961		April 1963		4	0
No. 10	ELDERLY PERSONS ACCOMMODATION NEEDS IN NEW ZEALAND, 1962		April 1963		3	6
No. 11	PATIENT-NURSE DEPENDENCY: EXPLORATORY STUDY		December 1963		4	6
No. 12	(To be published)					
No. 13	PATIENT- NURSE DEPENDENCY: GYNAECOLOGY		March 1964		5	6
No. 14	PATIENT-NURSE DEPENDENCY: GERIARICS		December 1964		4	6
No. 15	PATIENT-NURSE DEPENDENCY IN CHRISTCHURCH: PAEDIATRICS		September 1963		4	6
No. 16	SMOKING HABITS OF NEW ZEALAND DOCTORS		July 1964		4	6
No. 17	INFANT AND FOETAL LOSS IN NEW ZEALAND		October 1964		12	6
No. 18	TRENDS IN NOTIFIABLE DISEASE		December 1964		5	6
No. 19	SURVEY OF FACTORY FIRST AID 1963-64		December 1964		4	6
No. 20	PATIENT-NURSE DEPENDENCY: GENERAL SURGERY		December 1964		5	6